11.12.040 Inspection.

(1) GAS INSPECTOR APPOINTMENT - AUTHORITY. The City, upon recommendation of the Gas Manager and approval by the Utility Service Board, shall appoint and designate the gas inspector(s) for the Jasper Municipal Gas Utility. The designated employee(s) shall be authorized, empowered, and directed to inspect the installation, construction, and/or reconstruction of all piping, appliances, fittings, or any other item that will transport or use natural gas and the means for removal of the by-products caused by such use. The Gas Inspector(s) must also meet and abide by the following requirements:

(a) Must have a minimum of two (2) years experience with the Jasper Municipal Gas Utility or have been a City of Jasper licensed gas installer.

(b) Must be a full time employee of the City of Jasper.

(c) Must possess thorough knowledge of the standard materials and methods used in the installation of gas services, devices and equipment.

(d) Shall be required to pass the same tests that are required to be taken to become a licensed gas installer.

(e) Shall not be required to purchase a gas installer's license or bond.

(f) Shall be prohibited from engaging in the business of gas installations, either directly or indirectly, and shall have no interest in any concern engaged in such business in the City of Jasper at any time while holding such inspector's office whether compensated or not.

(g) Shall have the right, with proper credentials, during reasonable hours to enter any building in the official discharge of his duties or for the purpose of making an inspection or reinspection or test of the installation of gas piping, devices, appliances and equipment contained therein, and shall have the authority to cut or disconnect any such piping or service in case of emergency where necessary for safety to life and property or where such service may interfere with the work of the Fire Department or any other emergency workers. The Gas Inspector(s) is hereby empowered to disconnect or order the disconnection of any gas service to any gas devices, piping, appliances and equipment found to be dangerous to life or property because they are defective or defectively installed until such piping, devices, appliances, equipment and their use have

been made safe as directed by the inspector(s). (Ord. 1997-34, SIII A, 1997) (Ord. 1991-5 S1, 1991) (Ord. 417, SIII A, 1954)

(2) LICENSED INSTALLER. No pipe or appliances installed to use natural gas from mains or service of the gas system shall be installed by any person, firm, or corporation unless such person, firm, or corporation shall be licensed by the City to do such work. Any applicant for a license who is experienced in this type of work who is familiar with these rules and regulations, and who is a reliable and competent workman, shall be examined by the gas inspector. If the gas inspector is satisfied that this prospective licensee is capable of doing the work in a first class, workmanlike manner, license shall be issued to such person upon payment of a fee of twenty-five dollars ($25.00) per year. This license will be good for a period of one year from date issued. This license will be revoked immediately if any licensee shall violate any provisions of this chapter or shall do any work that is not according to specifications. Every licensee shall give a bond to the approval of the Clerk-Treasurer with approved surety in the sum of five thousand dollars ($5,000.00) conditioned that he will not violate any of the provisions of the chapter or do any work that is not according to specifications, which bond shall extend to all employees of said licensee. The name of the person who is tested and approved for license for a business shall appear on the renewal and employment of the individual by the business must be confirmed. If the approval individual should leave the employment of the business, the Clerk-Treasurer shall be notified within ten (10) days. (Ord. 1997-34, SIII B, 1997) (Ord. 417, SIII B, 1954)

(3) TESTING BY LICENSEE. Every licensee shall test every installation with at least 20 PSI of air by an approved type gauge in a manner satisfactory to the gas inspector. This test shall include all house piping and appurtenances up to and including the shut-off cock and the appliance. No appliance shall be installed without the licensee notifying the gas inspector. The gas inspector shall witness such test and when test is satisfactory, sign a certificate that such test has been made according to specifications. Such certificate shall be filed in the office of the City before any gas is turned into the house piping. (Ord. 1997-34, SIII C, 1997) (Ord. 417, SIII C, 1954)

(4) ADJUSTMENT OF APPLIANCES. In the event the person, firm or corporation installing an appliance is unable to properly adjust or regulate the appliance installed, they are to contact the City and obtain assistance from them, for which the City will charge the cost thereof to the person, firm or corporation making the installation. (Ord. 1997-34, SIII D, 1997) (Ord. 417, SIII D, 1954)

(5) INSPECTION FEE. An Inspection Fee shall be charged by the City to the licensee or owner for each house pipe inspection made and certificate issued. Said Inspection Fee shall be in accordance with the Non-Recurring Charges Ordinance in effect at the time the inspection is made. In the event the gas inspector finds the work done by the licensee unsatisfactory, he shall so advise the licensee. The licensee shall then correct any improper work as ordered. Another inspection shall then be made, for which an additional Inspection Fee will be charged. If the work on the second inspection is not satisfactory, the work will be condemned in writing; and, the license of the licensee may be suspended or revoked by action of the Common Council. (Ord. 1997-34, SIII E, 1997) (Ord. 998, S2, 1980) (Ord. 417, SIII E, 1954)

(6) AIR TESTING FOR LEAKS. In the event any test indicates a leak, soap suds at each fitting or connection shall be used to find the leak. (Ord. 1997-34, SIII F, 1997) (Ord. 417, SIII F, 1954)

(7) GASTIGHT PIPE REQUIRED. No gas shall be turned into a service or house piping until it is tested and proved to be gas tight. (Ord. 1997-34, SIII G, 1997) (Ord. 417, SIII G, 1954)

(8) REMOVING AIR FROM PIPING. As gas is turned into a service or house piping, the air in the line shall be carefully bled out through the appliance burners or through the dead end of a pipe run. No air shall remain in any part of the piping, however small, at the time the piping starts serving gas. (Ord. 1997-34, SIII H, 1997) (Ord. 998 S 2, 1980; Ord. 417 SIII H, 1954).

11.12.050 Appliances.

(1) APPROVAL. All gas appliances which use gas supplied by the City of Jasper through its distribution system, hereafter installed, shall be approved as to safety by the American Gas Association; except such apparatus as said Association does not accept shall be of a design and construction for test and approval which said apparatus not so accepted must be of a design and construction set forth in specifications of the Bureau of Standards of the United States Department of Commerce. Used appliances may be re-installed when, in the opinion of the gas inspector, they may be used without danger. (Ord. 1997-34, SIV A, 1997) (Ord. 417, SIV A, 1954)

(2) PIPE. All pipe used for house pipe shall be of good quality black wrought iron or steel, free from all defects. The use of second-hand or reconditioned pipe is forbidden unless tested and approved by the gas inspector. (Ord. 1997-34, SIV B, 1997) (Ord. 417 SIV B, 1954)

(3) SAFETY SHUT-OFF. An automatic safety shut-off valve shall be installed on all appliances when such appliances burn gas in a concealed combustion chamber. (Ord. 1997-34, SIV C, 1997) (Ord. 417, SIV C, 1954)

(4) FITTINGS. Fittings used for house piping shall be black, all steel or malleable iron. No cast iron fittings will be allowed. All stops or cocks shall be American Gas Association approved. Where flexible tubing is used it shall be stainless steel, American Gas Association approved and, satisfactory to the gas inspector, and shall be used only where permitted by the gas inspector. Compression couplings or brazed joints must be used on flexible tubing. (Ord. 1997-34, SIV D, 1997) (Ord. 417 SIV D, March 26, 1954.)

(5) APPLIANCE DRIPS. All appliances shall have a drip located in an accessible place after the shut off valve before each appliance. The drips shall be of a diameter equal to the appliance inlet and at least six inches (6") in length. (Ord. 1997-34, SIV E, 1997)

11.12.060 Specifications for House Piping and Appliance Installations.

(1) SIZE OF HOUSE PIPING TO GAS APPLIANCES. Piping shall be of a size and so installed as to provide a supply of gas sufficient to meet the maximum demand with a pressure drop of not more than twenty percent (20%) between the source of supply and the appliance or appliances. In no case should the branch or lead to any appliance be less than the size line indicated at the appliance inlet. Where necessary a larger size should be installed to avoid excessive pressure drop. The tables shown will give necessary information with reference to pipe sizes and gas inputs of various appliances. Consult manufacturers' catalogues with reference to special equipment. All house piping shall be a minimum of one inch (1") to the first appliance branch line. (Ord. 1997-34, SV A, 1997) (Ord. 417, SV B, 1954)

(2) FLOOR JOISTS. All house pipe shall be securely fastened to floor joists or sills with pipe straps or other approved devices. (Ord. 1997-34, SV B, 1997) (Ord. 417, SV C, 1954)

(3) EXTENSION OF PIPING. In the event it is necessary to extend house piping from one building to another, either over or underground, necessary steps should be taken to give pipe added protection. In case of overhead piping between buildings, rigid supports should be used. In case of underground house piping between buildings, protective coating must be used and an insulated union installed. Necessary cathodic protection must be attached and confirmed to be working. In either case, work or piping must be approved by the gas inspector before piping is covered. (Ord. 1997-34, SV C, 1997) (Ord. 417, SV D, 1954)

(4) DRIPS. All house piping shall be graded to a drip located in an accessible place directly downstream of customers' meters, either directly inside the building or outside if necessary. The drips shall be of a diameter equal to the size piping entering the building and at least six inches (6") in length. (Ord. 1997-34, SV D, 1997) (Ord. 417, SV E, 1954)

(5) OUTLETS. Any outlets installed but with no appliance attached shall be capped or plugged. (Ord. 1997-34, SV E, 1997) (Ord. 417, SV F, 1954)

TABLES

Table No. 1 Flow of gas in pipes in cubic feet per hour for pressure drop of 0.2 inches of water and specific gravity of .60:

Straight Pipe	Pipe Size							
Length in Feet	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	3"	4"
10'	70	172	345	760	1,180	2,380	7,080	14,800
20'	54	122	244	537	830	1,680	5,050	10,500
30'	43	99	199	438	675	1,370	4,090	8,560
40'	37	85	172	378	586	1,190	3,540	7,450
50'	33	76	154	340	525	1,060	3,160	6,650
60'	31	70	140	309	480	970	2,890	6,050
70'	28	65	130	286	445	900	2,670	5,600
80'	26	60	122	269	415	840	2,500	5,250
90'	25	57	114	253	390	790	2,360	4,950
100'	24	54	109	240	372	755	2,240	4,600
150'	20	45	89	196	293	615	1,830	3,820
200'	16	39	77	170	263	530	1,580	3,320

Table No. 2 Flow of gas in pipes in cubic feet per hour for pressure drop of 0.5 inches of water and specific gravity of .60:

Straight Pipe	Pipe Size							
Length in Feet	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	3"	4"
10'	110	276	545	1,200	1,850	3,760	11,200	23,500
20'	85	193	385	850	1,320	2,660	7,900	16,600
30'	68	156	315	690	1,070	2,180	6,450	13,500
40'	58	135	272	600	925	1,880	5,600	11,800
50'	52	122	244	535	830	1,680	5,000	10,500
60'	48	110	223	490	760	1,530	4,550	9,600
70'	44	102	206	450	705	1,420	4,250	8,900
80'	41	96	193	425	650	1,330	3,950	8,300
90'	39	91	182	400	620	1,260	3,720	7,850
100'	38	86	173	380	590	1,190	3,520	7,450
150'	31	70	140	310	480	970	2,900	6,100
200'	25	60	122	270	415	840	2,180	5,250

Table No. 3 Flow of gas in pipes in cubic feet per hour for pressure drop of 1.0 inches of water and specific gravity of .60:

Straight Pipe	Pipe Size							
Length in Feet	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	3"	4"
10'	150	365	735	1,620	2,520	5,520	15,100	32,500
20'	115	260	520	1,150	1,770	3,580	10,700	22,400
30'	92	210	425	935	1,440	2,840	8,700	18,500
40'	79	180	355	810	1,250	2,540	7,550	15,900
50'	70	160	328	725	1,120	2,260	6,750	14,200
60'	66	150	300	660	1,020	2,070	6,150	12,900
70'	60	138	280	610	950	1,920	5,700	11,900
80'	55	128	260	570	880	1,800	5,350	11,200
90'	53	122	240	540	830	1,680	5,000	10,500
100'	51	115	230	510	790	1,610	4,750	9,700
150'	42	96	190	420	625	1,310	3,900	8,150
200'	34	83	165	560	560	1,130	3,360	7,100

Table No. 4 Table of additional pipe to be added for each elbow or tee bend in line in computing pressure drop:

Pipe Size	Additional Length in Feet
1/2"	1 ft.
3/4"	2 ft.
1"	2 ft.
1-1/4"	3 ft.
2"	5 ft.
3"	10 ft.
4"	15 ft.

Table No. 5 Table showing maximum demand required for some common gas appliances:

Appliance		BTU Per Hour	Cu. Ft. Per Hour of 1,000 BTU Gas
Domestic Gas range (4 burner top)		62,500	62.5
Domestic Gas range (6 burner top)		107,500	107.5
Domestic circulating water heater		25,000-37,500	25.0-40.0
Domestic hot plate or laundry stove, per burner		12,500	12.5
Gas steam radiator, per section		2,000	2.0
Gas Log		12,500-25,000	12.5-25.0
Domestic room heater-radiant heaters, per glower or radiant		2,000	2.0
Domestic room heater-luminous flame, per tip		1,250	1.25
Automatic instantaneous water heater:			
4 gal. per minute capacity		150,000	150.0
6 gal. per minute capacity		225,000	225.0
8 gal. per minute capacity		300,000	300.0
Side arm heaters - 30-40 gal. tank		25,000	25.0
Storage water heaters:	20 gallon	21,000	21.0
	30 gallon	24,500	24.5
	35 gallon	27,000	27.0
	40 gallon	35,000	35.0
	45 gallon	42,500	42.5
	60 gallon	56,500	56.5

(Ord. 1997-34, SV F, 1997) (Ord. 417 S5, March 26, 1954)

11.12.070 Flue connections and venting.

(1) FLUE REQUIRED. Every gas appliance should be connected to an effective flue, excepting such minor appliances as laboratory equipment, etc., the construction of which will not permit. Exception is also made to domestic gas ranges and other ventless gas appliances approved by and installed in accordance with American Gas Association methods. (Ord. 1997-34, SVI A, 1997) (Ord. 417, SVI A, 1954)

(2) DRAFT HOODS. Every flue connected appliance (except an incinerator) unless its construction serves the same purpose should be equipped with a draft hood. This hood should meet the requirements as outlined:

(a) Insure the escape of products of combustion in the event of no draft or back draft to said appliance.

(b) Prevent a back draft entering the appliance.

(c) Neutralize the effect of varying stack draft upon the operation of said appliance.

Said draft hoods to be similar in design to those furnished by the manufacturers on gas fired boilers, water heaters, etc. For commercial and industrial installations the use of draft stabilizing devices such as the "Draft-O-Stat" is necessary. Proper draft control devices are to be used where necessary. (Ord. 1997-34, SVI B, 1997) (Ord. 417, SVI B, 1954)

(3) DAMPERS. The use of dampers is to be avoided on all side arm, instantaneous and storage type water heaters, as well as circulating room heaters. Draft hoods should be substituted. The use of dampers is to be avoided wherever possible in connection with converted furnaces and boilers, as well as in straight gas fired installations. A damper is not a draft stabilizer nor will it prevent down drafts. In certain installations the use of a damper may be found necessary and in all such instances a damper with center hole must be provided. On commercial and industrial installations where no center hole can readily be cut in dampers, positive provision must be made so that the damper cannot be entirely closed off. Where dampers are used, the control on the dampers must be of a rigid positive type so that the adjustment will not be changed by vibration or other unforeseen conditions. (Ord. 1997-34, SVI C, 1997) (Ord. 417, SVI C, 1954)

(4) CHIMNEYS. When any appliance is connected to a bracket chimney, a new opening shall be cut at least twelve inches (12") above the old one whenever possible and the old outlet used as a clean-out. A tight fitting vent cap should be provided. Before any gas fired appliance is connected to a chimney, the chimney must be carefully cleaned throughout its entire length and all accumulations of soot, mortar, etc., removed. Repairs must be made if necessary before gas is turned on. (Ord. 1997-34, SVI D, 1997) (Ord. 417, SVI D, 1954)

(5) SIZE CONNECTION. The vent pipe or connection for any appliance shall not be smaller than the size indicated by vent collar of the appliance. Where the appliance has more than one vent connection or where more than one appliance is connected to the same vent, the vent pipe should equal the combined area of the vents for which it acts as a common carrier to the flue. (Ord. 1997-34, SVI E, 1997) (Ord. 417, SVI E, 1954)

(6) CONNECT TO BRICK OR MASONRY FLUE. Whenever possible the appliance vent shall be connected directly to a brick or masonry chimney or flue. The installation of individual appliance vents to the outside is to be avoided whenever possible. Such individual appliance vents should not run horizontally through the wall of the building into the atmosphere, but should rise vertically to the roof before coming in contact with the outside air. The vents on normal appliances should be brought to a point at least two feet (2') higher than the roof line. Vents terminating along the wall of a building after a vertical run of a few feet should not be installed. Vents for high efficiency appliances may be vented through a side wall if necessary. Installation, materials, slope and supports shall conform to manufacturer's specifications and be American Gas Association approved. Where high efficiency appliances are connected to a standard chimney, approved piping for the vent must extend through to the top of the chimney. No other gas appliances are to be vented into the chimney. (Ord. 1997-34, SVI F, 1997) (Ord. 417, SVI F, 1954)

(7) CONCEALED VENTS. Concealed vents shall not be constructed of sheet metal but shall be of "Transite" vent pipe or other material bearing the seal of approval of "The Underwriters Laboratories". Even when these approved materials are used, provision must be made so that the clearance from combustible materials is not less than one inch (1") from the outer edge of venting pipe. Clearance must be obtained by the use of proper spaces and thimbles. (Ord. 1997-34, SVI G, 1997) (Ord. 417, SVI G, 1954)

(8) VENTS THROUGH WALLS, CEILINGS OR ROOFS. All vents passing through walls, ceilings, or roofs, shall be constructed of "Transite" or other materials bearing "The Underwriters Laboratories" seal of approval, and must have proper clearance of not less than one inch (1") provided by approved insulating or ventilating thimbles. (Ord. 1997-34, SVI H, 1997) (Ord. 417, SVI H, 1954)

(9) HORIZONTAL RUNS AND SUPPORTS. Horizontal runs shall not exceed twenty feet (20') in length and shall be graded up toward the flue not less than one quarter inch (1/4") to each foot of length. Every vent shall be supported and constructed so as to remain permanently in position under all conditions or ordinary use. (Ord. 1997-34, SVI I, 1997) (Ord. 417, SVI I, 1954)

(10) BENDS. The vent pipe should be so installed as to avoid sharp turns or other constructional features which would create resistance to flow of flue gases. (Ord. 1997-34, SVI J, 1997) (Ord. 417, SVI J, 1954)

(11) CHIMNEY ENTRANCE. In entering the flue or chimney, the connection should be above the extreme bottom to avoid stoppage from falling plaster, etc. Where more than one vent pipe is connected to a chimney or flue connection, the connection shall be made at different levels. Care must be taken so that the vent pipe does not protrude sufficiently far into the chimney as to cause partial obstruction. Vent pipes shall be securely fastened to the chimney or flue to prevent the pipe from slipping from the chimney opening for any cause. When a vent from a gas appliance is connected to a chimney to which vents from coal or wood burning appliances are also connected, the opening for the gas appliance shall be above that for coal or wood burning appliances. (Ord. 1997-34, SVI K, 1997) (Ord. 417, SVI K, 1954)

(12) VENTS IN CLOSED SPACES. Vents from gas appliances should not be run through closets or other small unvented spaces where they may come in contact with combustible material, such as clothing, paper, boxes, etc. (Ord. 1997-34, SVI L, 1997) (Ord. 417 SVI L, March 26, 1954).

11.12.080 Service lines and services.

(1) TEE-WING COCK. Each service line shall consist of a service tee welded to the main. The tee shall be of the same size as the service piping. A lubricated lock wing cock shall be installed on each service on the upstream side of the regulator and in a readily accessible place. The homeowner or business shall see that the accessibility to the meter set is not hindered by bushes or construction. The City can remove such obstructions at the owner's expense. The size of the line, meter, and regulator shall be determined by the City. (Ord. 1997-34, SVII A, 1997) (Ord. 417, SVII A, 1954)

(2) SERVICE LINES TO BUILDINGS WITHOUT BASEMENTS. In order to prevent any accumulation of gas in unvented spaces under buildings without basements, gas service lines must be brought up above floor level on the outside of the building and then entered through the wall. (Ord. 1997-34, SVII B, 1997) (Ord. 417, SVII B, 1954)

(3) METERS. Meters shall be located in a readily accessible place and in a place where possible damage is least. No meter or regulator shall be located in a closed, unventilated place. Meters shall be installed in such a manner that they are easily available for reading and servicing. All meter settings shall be in accordance with a standard plan. Sketch of standard meter settings are available upon request from the gas inspector. Also tables for various type meters and their capacities. Gas meters should be located at a safe distance from equipment where there is an unguarded flame or the possibility of an electric spark. It is also desirable to avoid

extreme temperatures and sudden extreme changes in temperature. (Ord. 1997-34, SVII C, 1997) (Ord. 417, SVII C, 1954)

(4) DITCHES. Gas service lines are not to be laid in the same ditch as water, sewer, or other lines. A separate ditch should be dug and a minimum cover of eighteen inches (18") secured. Service lines for gas shall be laid to grade-sloping from the point of entrance to the main. (Ord. 1997-34, SVII D, 1997) (Ord. 417 SVII D, 1954).

(5) SERVICE LINE GROUND CONTACT. The area where the service line exits the ground shall be kept clear of asphalt, concrete, or other materials that would interfere with the service line. If such material must be used in this area, a collar of approved material and size as determined by the City shall be installed. (Ord. 1997-34, SVII E, 1997)

(6) HOUSE PIPING ENTERING BUILDINGS. The area where the house piping entering the building shall not have any abrasive materials that come in contact with the piping. If the piping enters a building through concrete, brick, or other materials harmful to the piping, a sleeve of proper material and size as determined by the City shall be used. (Ord. 1997-34, SVII F, 1997)

(7) MAINTENANCE OF BURIED GAS PIPING. The Jasper Municipal Gas Utility does not maintain buried gas lines on the customer's side of the meter set. The customer is responsible for periodically inspecting said buried lines for leaks and corrosion; and for their repair, if any unsafe condition is discovered. (Ord. 1997-34, SVII G, 1997)

(1) **Violations.** Any person, firm or corporation violating this ordinance shall be punished within the limits prescribed by the Common Council. (Ord. 1997-34, SVIII, 1997) (Ord. 417 SVIII, 1954).